MINUTES
of the
THIRD MEETING
of the
WATER AND NATURAL RESOURCES COMMITTEE
August 21-22
Las Vegas

The third meeting of the Water and Natural Resources Committee was called to order by Representative Joe M Stell, chair, on Monday, August 21, 2006, at 10:15 a.m. in the Sala de Madrid at New Mexico Highlands University in Las Vegas.

Present
Rep. Joe M Stell, Chair
Sen. Carlos R. Cisneros, Vice Chair
Rep. Ray Begaye
Rep. Joseph Cervantes
Sen. Dede Feldman
Sen. Mary Jane M. Garcia
Rep. Dona G. Irwin
Rep. Larry A. Larranaga
Rep Kathy A. McCoy
Sen. Steven P. Neville
Sen. Mary Kay Papen
Rep. Mimi Stewart
Rep. Sandra L. Townsend
Rep. Don L. Tripp

Absent
Sen. Sue Wilson Beffort
Sen. Cynthia Nava
Rep. Andy Nunez
Sen. H. Diane Snyder

Advisory Members
Sen. Rod Adair (August 21)
Sen. Vernon D. Asbill
Rep. Anna M. Crook
Rep. Candy Spence Ezzell
Sen. Clinton D. Harden, Jr.
Rep. Rhonda S. King
Rep. Ben Lujan
Rep. Terry T. Marquardt (August 22)
Rep. Danice Picraux
Sen. John C. Ryan
Rep. Peter Wirth
Rep. Richard P. Cheney
Sen. Timothy Z. Jennings
Sen. Gay G. Kernan
Rep. James Roger Madalena
Sen. Leonard Lee Rawson
Sen. Nancy Rodriguez
Rep. Henry Kiki Saavedra
Sen. Leonard Tsosie
Rep. Eric A. Youngberg

(Attendance dates are noted for those members not present for the entire meeting.)

Staff
Gordon Meeks
Jon Boller
Jeret Fleetwood

Guests
The guest list is in the original meeting file.

Monday, August 21
Dr. Manuel T. Pacheco, president of New Mexico Highlands University (NMHU), welcomed the committee to the university and to Las Vegas. He noted that August 21 was also the first day of classes for the fall semester and that NMHU is expecting record numbers of new student enrollees.

Acequia Revitalization Initiatives
Paula Garcia, director of the New Mexico Acequia Association, provided the committee with an update on acequia revitalization issues. She emphasized the importance of regional acequia associations, explaining that they are the workhorses of local acequia management. Ms. Garcia also discussed the importance of acequias, pointing out that acequias support biodiversity, help recharge aquifers, provide locally produced agriculture and act as a source of local knowledge. However, Ms. Garcia cautioned that several acequias in New Mexico are endangered by rapidly developing communities nearby, such as the Jemez, Gallinas and Hondo Valley acequia systems.

Ms. Garcia went on to explain that in order for acequias to continue to operate as they have for centuries, local governance of them must be strengthened. To help strengthen local acequia governance, the New Mexico Acequia Association has developed an acequia governance handbook and conducts workshops on acequia governance in areas across New Mexico. Ms. Garcia also noted that as agricultural land on acequia systems is taken out of production, concerns arise over whether the acequia as a whole can continue to operate properly, since the acequia depends on community involvement.

Questions and comments focused on:

- the proximity of endangered acequia systems to rapidly growing urban areas such as Santa Fe, Albuquerque and Rio Rancho;
- adjudication of acequia water rights;
- methods of measuring adjudicated water;
- the transfer of water rights;
- the sale of water rights; and
- the adoption of acequia bylaws.

Forestry and Watershed Restoration Institute, NMHU
Jose C'de Baca, acting director of the Forestry and Watershed Restoration Institute, provided the committee with a brief history and overview of the institute. He explained that there are two other similar institutions, but that New Mexico's is unique because of its focus on watershed health. Mr. C'de Baca also pointed out that the institute is in its infancy and that a

nationwide search is underway for a permanent director. He also discussed several initiatives that the institute is working on, including developing uses for the small diameter trees that are harvested from watersheds to improve their health and resistance to catastrophic fire; education of New Mexicans about forest and watershed health; and the formation of relationships with other New Mexico colleges and universities.

Walter Dunn of the United States Forest Service elaborated on the history of the Forestry and Watershed Institute at NMHU. He explained that the institute was modeled after a similar one in Arizona and that federal funding for the institute is leveraged with some state funding.

Butch Blazer, state forester, discussed the support of the State Forestry Division of the Energy, Minerals and Natural Resources Department for the institute. He noted that New Mexico has been receiving help from northern Arizona for some time now, but that a real need exists for New Mexico to have its own institute to help implement the recently approved statewide watershed health plan.

Ron Gardiner, consultant to NMHU, discussed his involvement with the institute. He explained that drought, fires and floods are all related to watershed management. Mr. Gardiner thanked the legislature for its support and noted that the institute will require the continued support of the state to achieve its mission.
Questions and comments focused on:

- jurisdictional problems in designing watershed restoration projects;
- how the number of trees per acre cleared is a function of site and local ecology and that the institute will be developing protocols for guidance;
- the urgency of the need to restore watersheds now rather than delay for more endless studies and analyses;
- the academic role of the institute;
- the number of students at NMHU majoring in fire management and other forestry-related subjects;
- collaboration with local fire departments;
- the number of national forests in New Mexico;
- why the expense of restoring watersheds is more than the market value of the land;
- the costs/benefits of watershed restoration;
- private landowners' access to information from the institute;
- biomass energy production from watershed restoration; and
- reporting to the legislature on agencies' use of the institute's information.

Clean Energy Initiatives

Joanna Prukop, secretary, Energy, Minerals and Natural Resources Department (EMNRD), and Craig O'Hare, special assistant for renewable energy for EMNRD, provided the committee with testimony regarding clean energy. They began by clarifying the definition of "clean energy", explaining that it is comprised of renewable energy sources such as solar, wind and biomass energy; increasing energy efficiency in buildings, appliances and vehicles; and clean fuels such as ethanol, biodiesel and hydrogen. Ms. Prukop and Mr. O'Hare noted that New Mexico enjoys a location that is well-suited to solar energy and discussed concentrating solar

power (LCSP) initiatives, which involve the use of large parabolic troughs to create steam. They pointed out that CSP plant cost projections indicate that CSP is competitive with newer fossil fuel plants.

Second, Ms. Prukop and Mr. O'Hare discussed methods of increasing energy efficiency, particularly in buildings. They noted that increasing energy efficiency is perhaps the most important factor in reducing the impacts of high gasoline and natural gas costs. Ms. Prukop and Mr. O'Hare explained that construction of "green buildings", which are much more energy efficient, can raise initial construction costs by as much as two percent, but that the costs are offset within five years by reduced energy utility costs.

Third, Ms. Prukop and Mr. O'Hare discussed the emerging new energy economy. They explained that clean energy projects and related manufacturing jobs offer significant economic development opportunities for states and nations that opt to pursue them and that New Mexico is attempting to position itself to be a leader in the new energy economy.

Fourth, Ms. Prukop and Mr. O'Hare discussed several of the clean energy programs initiated in New Mexico over the past five years. Those programs included the 2004 hybrid vehicles excise tax exemption, the 2005 Efficient Use of Energy Act, the Clean Energy Grants Program, the renewable energy production tax credit and the renewable energy portfolio standard of 10 percent by 2011.

Finally, Ms. Prukop and Mr. O'Hare discussed several clean energy legislative initiatives for the 2007 legislative session. They explained that the number one clean energy priority would likely be the Renewable Energy Transmission Authority Act, which would provide for the planning, construction, financing and operation of energy transmission infrastructure in New Mexico. Ms. Prukop and Mr. O'Hare went on to explain that the act would create a pseudo-public entity that would function similarly to the New Mexico Finance Authority and would authorize revenue bonds for electricity transmission projects. They pointed out that similar acts passed through both houses of the legislature in 2006, but that time simply ran out on getting one of the acts through the other chamber. Other aspects Ms. Prukop and Mr. O'Hare discussed about the act were eminent domain, the makeup of the renewable energy transmission authority board and legislative oversight of the transmission authority. Other legislative initiatives Ms. Prukop and Mr. O'Hare discussed were amendments to the existing renewable energy production tax credit, an Advanced Energy Product Manufacturers Tax Credit Act and continued funding for the Clean Energy Grants Program.

Questions and comments focused on:

- the Taxation and Revenue Department's consistent issuance of adverse fiscal impact reports on tax incentives for alternative energy investments;
- solar energy set-aside provisions in the Public Regulation Commission's renewable energy portfolio requirements;
- transmission capacity limitations;
- the eligibility and participation rate of rural electric cooperatives in the incentives for renewable energy;
- the Renewable Energy Bonding Act;

- the lack of a power purchase agreement for the Deming-area solar project;
- the use of Sandia National Laboratories technology by Advent Solar at its Mesa del Sol project;
- New Mexico State University's role in solar energy development;
- potential jobs that may be created by renewable energy developments;
- state office buildings' achievement of energy-efficient standards;
- bonding assessments for renewable energy projects; and
- a comparison of the water usage of evaporative cooling technology versus compressed air conditioning.

On a motion made, seconded and unanimously approved, the minutes of the July 18-19 meeting were approved as submitted.

Aquifer Mapping

Dr. Peter Scholle and Peggy Johnson, both of the Bureau of Geology and Mineral Resources (BGMR) at New Mexico Tech, provided the committee with an update on their ongoing aquifer mapping program. They explained that the BGMR has developed an aquifer mapping program and that funding from the 2005 legislature allowed them to begin some new aquifer mapping projects as well as to continue other ones. Dr. Scholle and Ms. Johnson also discussed some of the recent aquifer mapping and hydrogeologic studies they have conducted, including ones in the Roswell Artesian Basin, Arroyo Seco and Arroyo Hondo near Taos and in the Lower Pecos River Valley. They also provided the committee with various charts detailing the data they have compiled while working on mapping the aquifer in the Santa Fe area.

Questions and comments focused on:

- the governor's veto of the legislative appropriations two years in a row;
- interpretations of data collected by the bureau;
- measurement of aquifer recharge rates;
- the similarity of this work with work performed by the bureau for the oil and gas industry;
- historical records of water table monitoring; and
- access by private sector hydrologists to the bureau's data.

Climate Change

Dr. Greg Garfin of the University of Arizona provided the committee with some historical perspective on the prospect of climate change in the southwestern United States. He explained that tree ring and various other data indicate that the area suffered a drought as recently as the 1950s, but that much more severe droughts occurred in the 1790s and 1660s. Dr. Garfin also noted that the area suffered a long, severe "mega-drought" in the 1580s. He also noted that recent data points to rising temperatures in the southwest and pointed out that only a few degrees separate rain from snow as precipitation in many areas, which would lessen snow pack and likely intensify the effects of any drought conditions the area is experiencing, because snow pack is the major source of the region's moisture. Finally, Dr. Garfin pointed out that data shows that during prolonged droughts, wet years such as this one have often been followed by even drier ones.

Dr. Dave Gutzler of the University of New Mexico provided the committee with testimony regarding what can likely be expected in terms of climate change. He explained that rising temperature trends should continue, or even accelerate, and that droughts will continue to occur within the context of an increasingly warmer climate. Dr. Gutzler went on to note that several computer models have been run that show that as carbon dioxide levels in the atmosphere continue to increase, they eventually overwhelm the natural cooling mechanisms of the atmosphere. He also pointed out that as temperatures increase, evaporation will also increase, which will rob the soil of moisture, as well causing as smaller amounts of snow pack to melt earlier and earlier in the spring. Finally, Dr. Gutzler indicated that warmer temperatures will lengthen the agricultural growing season in New Mexico, which will in turn increase the demand for water as plants consume more water over a longer period of time.

Anne Watkins of the Office of the State Engineer explained to the committee that the ramifications of the reports of Dr. Garfin and Dr. Gutzler place an even larger emphasis on water management, conservation and efficiency.

Questions and comments focused on:

- whether carbon dioxide models accounted for potentially increased photosynthesis rates and consequent balancing of the carbon dioxide in the atmosphere;
- the ability of oceans to absorb carbon dioxide;
- the differential between warming of land masses and oceans;
- new information indicating the Indian Ocean as a contributor to drought conditions in the southwest of North America;
- the reasons for above average temperature increases in New Mexico to be increasing twice as fast as the rest of the world;
- the potential length of prolonged drought;
- other potential causes of increased temperatures;
- changes in the historical record; and
- the massive die off in the four corners area.

Tuesday, August 22

Office of the State Engineer Enforcement Procedures

Greg Ridgely and Hillary Lamberton, of the Office of the State Engineer (OSE), provided the committee with a bill regarding enforcement of compliance orders issued by the OSE. Ms. Lamberton explained that a similar bill was introduced during the 2006 legislative session and that the OSE intends to introduce it again in the upcoming session. Ms. Lamberton went on to explain that the proposed bill would amend the statute that governs compliance orders and would allow for those parties who have received compliance orders from the OSE to request a formal hearing. However, she noted that if no such request is made, the compliance order would become final.

Questions and comments focused on:

- repayment of water over-diverted by parties receiving compliance orders;
- the reason for reorganization of order of subsections;
- enforcement authority over Native American irrigators (none);
- enforcement of permit conditions for acequias;

- the differences in measurement methods by the OSE and acequia associations;
- use of the statute against unadjudicated acequias;
- requirements for meter installations;
- how quickly the OSE can shut down illegal diversions;
- the effect on case law of statutory changes;
- suggestions for changes in Subsection B of the bill;
- the time it takes to resolve an enforcement action that may be appealed;
- effectiveness of compliance orders;
- the method the OSE uses to "serve" compliance orders;
- the method of informal resolution;
- the example of lower Rio Grande compliance orders;
- the issuance of compliance orders in Spanish;
- the fact that compliance orders place the burden on the over-user or water rights claimant; and
- the state Supreme Court's ad hoc committee on rules of civil procedure in water rights adjudications.

Arsenic Removal Technologies

Norbert Barcena, CEO of ARS Technologies, and Dr. Frank Way of New Mexico Tech provided the committee with a brief overview of a technology developed by ARS Technologies that removes arsenic from drinking water. They explained that there are currently a very limited number of available technologies that can perform such a function and that the one developed by ARS has been recently tested in a pilot project involving Bernalillo County. They went on to note that this technology requires no pretreatment of water, unlike other methods, and that less than one percent of water treated is lost. Also, Mr. Barcena noted that there are no harmful byproducts produced by this technology and that the systems are particularly easy to operate. Finally, he pointed out that while previous estimates of the cost of removing arsenic from household drinking water was rather high, ARS Technologies can reduce the cost to about $10.00 per household per month.

Questions and comments focused on:

- whether this technology can remove other harmful elements;
- the scale of the system necessary to achieve economic viability;
- whether the cost of the technology depends upon contamination levels present;
- the final disposition of the arsenic that is removed from the treated water;
- the level of hazard posed by the treated arsenic;
- whether there is an economic value to retrieved arsenic;
- the treatment of water in the Las Cruces area contaminated by uranium;
- the government entity responsible for testing arsenic levels in drinking water;
- the cost of ARS Technologies' arsenic treatment units;
- the cost to the state;
- the amount of arsenic residue generated by treating water of a community of 500;
- the feasibility of ARS Technologies producing small, household arsenic removal systems;
- the adaptability of the system to rural water users' needs; and
- the feasibility of retrofitting the system to existing water treatment systems.

Eastern New Mexico Rural Water System Status

Scott Verhines, program manager for the Eastern New Mexico Water Authority, told the committee that the authority has received $4 million so far from the legislature for the project. He showed a map of the region to be served by the project (essentially the communities between the Ute Reservoir and Portales) and explained the need for the project, which is a direct result of the mining of the Ogallala Aquifer. He expects completion of the preliminary engineering report in October of this year, after review by the Bureau of Reclamation. He reported that engineering analyses indicate that the only alternative to the pipeline project from the Ute Reservoir is the retirement of 78,000 acres of agricultural land and the close regulation of pumping and irrigation under an additional 350,000 acres. The current estimated costs of the project are $436 million and $8 to 9 million a year for operations and maintenance of the project. The water rights are available from the Canadian River Compact, but if New Mexico does not use those water rights, they could be lost to Texas, he testified. He said that if the federal government assumes 65 to 75 percent of the cost burden of the project, the remaining cost to the users is affordable, about $3.00 to $3.50 per 1,000 gallons, which is comparable to several existing communities' rate base.

Questions and comments from the committee focused on:

- the effect of municipal and industrial water use on agriculture in the region;
- the effect on Ute Reservoir's water quality of the Ute Ranch Subdivision being built now;
- the appropriation request last year ($50 million);
- the current status of the project;
- state funding options;
- the potential for wastewater reuse by industry and municipalities;
- the total estimated cost to the state over the build-out period ($65 million) and to the local communities ($43 million);
- the source of the local match;
- the "mapping out" and scheduling of the funding; and
- the comparison with development of the Salt Basin water resource.

Mr. Verhines told the committee that the New Mexico Society of Professional Engineers, the American Council of Engineering Consultants and the American Society of Civil Engineers New Mexico chapters have appointed committees to formulate ways to prioritize the major projects in the state and to develop an ideal schedule of funding these projects. That will be presented to the Water and Natural Resources Committee at its October meeting in Artesia.

The committee adjourned at 12:00 noon.